UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,610	06/27/2001	Guojun Zhou	P 279199	8879

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EXAMINER
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2655	

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Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>27 June 2001</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-18</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-18</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>27 June 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless – (b) the invention was patented or described in a
> printed publication in this or a foreign country or in public use or on sale in this country, more than
> one year prior to the date of application for patent in the United States.

2.   Claims 5-6, 10-12, and 16-18 are rejected under 35 U.S.C. 102(b) as

being anticipated by Gorin et al. (US Patent No. 6044337).

3.   Regarding claims 5, 10, and 16, Gorin et al. disclose a mechanism,

method, and computer-readable medium encoded with a program for keyword

based speech recognition, comprising:

a keyword spotting mechanism for detecting, using at least one acoustic

models, at least one keyword from input speech data based on a keyword list

(*col. 5, ln. 1 to col. 6, ln. 34 and see figure 4*); and

a keyword based recognition mechanism for recognizing a word sequence

using the at least one keyword, detected by the keyword spotting mechanism,

based on a language model (*col. 5, ln. 1 to col. 6, ln. 34 and see figure 4*).

4.   Regarding claim 6, Gorin et al. further disclose that the system according

to claim 5, further comprising: an index mechanism for establishing indices to

word sequences that are allowed by the language model based on the keyword

list, the indices being used by the keyword based recognition mechanism to recognize the word sequence (*col. 5, ln. 49 to col. 6, ln. 34 and see figure 4*).

5.   Regarding claims 11 and 17, Gorin et al. further disclose that the method and medium according to claims 10 and 16, respectively, further comprising: deriving at least one word sequence from the language model to generate a language associated with the language model (*col. 5, ln. 43-67*); and establishing indices to the at least one word sequence based on each word in the keyword list prior to the detecting (*col. 5, ln. 49 to col. 6, ln. 34 and see figure 4*).

6.   Regarding claims 12 and 18, Gorin et al. further disclose that the method according to claims 10 and 17, respectively, wherein the recognizing comprises: identifying zero or more candidate word sequences, through the indices between each keyword in the keyword list to the at least one word sequence, that contain at least some of the at least one keyword (*col. 5, ln. 30-42*); and determining the word sequence from the zero or more candidate word sequences that match the at least one keyword (*col. 6, ln. 1-34*).

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 1-4, 7-9, and 13-15 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hedin et al. (US Patent No. 6185535) in view of Setlur et al.

(US Patent No. 5956675), and further in view of Gorin et al. (US Patent No.

6044337).

9.   Regarding claim 1, Hedin et al. discloses a system, comprising:

a first speech recognition mechanism for recognizing a word sequence,

from input speech data, based on a language model (*col. 5, ln. 1-33*); and a

second speech recognition mechanism for recognizing, when the first speech

recognition mechanism fails, the word sequence based on at least one word

detected from the input speech data (*col. 5, ln. 1-33*).

Hedin et al. do not disclose that the first speech recognition mechanism is

a graph-decoder based speech recognition mechanism, and second speech

recognition mechanism is a keyword-based speech recognition mechanism.

However, Setlur et al. teach that the first speech recognition mechanism is a

graph-decoder based speech recognition mechanism (*col. 4, ln. 48 to col. 5, ln.

23*).

Since Hedin et al. and Setlur et al. are analogous art because they are

from the same field of endeavors, it would have been obvious to one of ordinary

skill in the art at the time of invention to modify Hedin et al. by incorporating the

teaching of Setlur et al. in order to improve recognition accuracy while reducing processing time and power.

The modified Hedin et al. still do not disclose that the second speech recognition mechanism is a keyword-based speech recognition mechanism. However, Gorin et al. further teach that the second speech recognition mechanism is a keyword-based speech recognition mechanism (*col. 5, ln. 30 to col. 6, ln. 34*).

Since the modified Hedin et al. and Gorin et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Hedin et al. by incorporating the teaching of Gorin et al. in order to speech up service request.

10.   Regarding claim 2, Hedin et al. further disclose the system according to claim 1 that recognition acceptance mechanism for determining whether to accept the recognition result generated by the first speech recognition mechanism or to activate, when the recognition result from the first speech recognition mechanism is not accepted, the keyword based speech recognition mechanism (*col. 5, ln. 1-33, if not recognized, send to other speech recognizer*).

Hedin et al. fail to specifically disclose that a graph decoder based speech recognition mechanism comprises: a graph decoder for recognizing the word sequence from the input speech data based on at least one acoustic feature to generate a recognition result, the recognizing being performed according to at least one acoustic model and a language model. However, Setlur et al. further

teach a graph decoder for recognizing the word sequence from the input speech data based on at least one acoustic feature to generate a recognition result, the recognizing being performed according to at least one acoustic model and a language model (*col. 4, In. 48 to col. 5, In. 23*).

Since Hedin et al. and Setlur et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hedin et al. by incorporating the teaching of Setlur et al. in order to improve recognition accuracy while reducing processing time and power.

11.   Regarding claim 3, Hedin et al. further disclose a system according to claim 2, further comprising an acoustic feature extractor to extract the at least one acoustic feature from the input speech data (*Feature Vector Extraction 229 in figure 2*).

12.   Regarding claim 4, Hedin et al do not disclose the system according to claim 2, wherein the keyword based speech recognition mechanism comprises: a keyword spotting mechanism, activated by the recognition acceptance mechanism, for detecting, using the at least one acoustic models, the at least one keyword from the input speech data based on a keyword list; and a keyword based recognition mechanism for recognizing the word sequence using the at least one keyword, detected by the keyword spotting mechanism, based on the language model.

However, Gorin et al. further disclose a keyword spotting mechanism, activated by the recognition acceptance mechanism, for detecting, using the at least one acoustic models, the at least one keyword from the input speech data based on a keyword list (*col. 5, ln. 1 to col. 6, ln. 34 and see figure 4*); and a keyword based recognition mechanism for recognizing the word sequence using the at least one keyword, detected by the keyword spotting mechanism, based on the language model (*col. 5, ln. 1 to col. 6, ln. 34 and see figure 4*).

Since the modified Hedin et al. and Gorin et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Hedin et al. by incorporating the teaching of Gorin et al. in order to speech up service request.

13.   Regarding claims 7 and 13, Hedin et al. disclose a method, comprising:

a first speech recognition mechanism for recognizing a word sequence, from input speech data, based on at least one acoustic features, the recognizing being performed using at least one acoustic model and a language model (*col. 5, ln. 1-33*); determining, by a recognition acceptance mechanism, whether to accept the word sequence or to activate a keyword based speech recognition mechanism (*col. 5, ln. 1-33, if not recognized, send to other speech recognizer*); and a second speech recognition mechanism for recognizing, when the first speech recognition mechanism fails, the word sequence based on at least one word detected from the input speech data (*col. 5, ln. 1-33*).

Hedin et al. do not disclose that the first speech recognition mechanism is a graph-decoder based speech recognition mechanism, and second speech recognition mechanism is a keyword-based speech recognition mechanism. However, Setlur et al. teach that the first speech recognition mechanism is a graph-decoder based speech recognition mechanism (*col. 4, ln. 48 to col. 5, ln. 23*).

Since Hedin et al. and Setlur et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hedin et al. by incorporating the teaching of Setlur et al. in order to improve recognition accuracy while reducing processing time and power.

The modified Hedin et al. still do not disclose that the second speech recognition mechanism is a keyword-based speech recognition mechanism. However, Gorin et al. further teach that the second speech recognition mechanism is a keyword-based speech recognition mechanism (*col. 5, ln. 30 to col. 6, ln. 34*).

Since the modified Hedin et al. and Gorin et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Hedin et al. by incorporating the teaching of Gorin et al. in order to speed up service request.

14.   Regarding claims 8 and 14, the modified Hedin et al. do not disclose the method and medium according to claims 7 and 13, respectively, wherein the

performing comprises: detecting, by a keyword spotting mechanism, at least one keyword, according to a keyword list, from the input speech data based on the at least one acoustic model; and recognizing, by a keyword based recognition mechanism, the word sequence using the at least one keyword, detected by the detecting, based on the language model.

However, Gorin et al. further teach detecting, by a keyword spotting mechanism, at least one keyword, according to a keyword list, from the input speech data based on the at least one acoustic model (*col. 5, ln. 1 to col. 6, ln. 34 and see figure 4*); and recognizing, by a keyword based recognition mechanism, the word sequence using the at least one keyword, detected by the detecting, based on the language model (*col. 5, ln. 1 to col. 6, ln. 34 and see figure 4*).

Since the modified Hedin et al. and Gorin et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Hedin et al. by incorporating the teaching of Gorin et al. in order to speed up service request by eliminating traditional long-waited menu-based service selection.

15.   Regarding claims 9 and 15, Hedin et al. further disclose the method and medium according to claims 7 and 13, respectively, further comprising: receiving the input speech data (*microphone 215 in figure 2*); and extracting, by an acoustic feature extractor, the at least one acoustic feature from the input speech data (*Feature Vector Extraction 229 in figure 2*).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen Vo whose telephone number is 703-305-8665. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner Huyen X. Vo   August 3, 2004

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W. R. YOUNG
PRIMARY EXAMINER